

*YASNOGORODSKIY, I. Z.*

USSR/Engineering - Metal heating

Card 1/1 : Pub. 12 - 8/16

Authors : Yasnogorodskiy, I. Z.

Title : Controlling the rate of metal heating in an electrolyte

Periodical : Avt. trakt. prom. 6, 21-24, June 1954

Abstract : An account is given of attempts made to control the rate of metal heating in an electrolyte. Tables giving technical data on electrolyte composition, rate of heating, and metal and electrolyte temperatures, are presented. Graphs; drawing.

Institution : .....

Submitted : .....

*Translation M-476, 31 May 51*

Name : YASNOGORODSKIY, I. Z.  
Dissertation : Theory and practice in heating metals in  
an electrolyte  
Degree : Cand Tech Sci  
Defended At : Min Higher Education USSR, Moscow  
Automobile Mechanics Inst  
Publication Date, Place : 1956, Moscow  
Source : Knizhnaya Letopis' No 5, 1957

BAKHAREV, A.P.; YASNOGORODSKIY, I.Z., laureat Stalinskoy premii.

Superiority of the electrolytic method of heating metals. Avt. i  
trakt. prom. no.2:31-33 P '56. (MLRA 9:6)

1. Nauchno-issledovatel'skiy institut traktorosel'khoz mash i  
Altayskiy traktorny zavod.  
(Metals--Heat treatment)

PHASE I BOOK EXPLOITATION 50V/2901

Koroye v elektricheskoy i ultrazvukovoy obrabotke materialov (New Developments in Electrical and Ultrasonic Machining of Materials) [Leningrad], Lenizdat, 1959. 281 p. 5,000 copies printed.

Ed. (title page): L.Ya. Popilov; Ed. (inside book): S.I. Borshchavskaya; Tech. Ed.: P.S. Smirnov.

PURPOSE: This book is intended for technical personnel and production workers.

COVERAGE: This is a collection of 30 articles presented at the Third All-Union Conference of the Scientific and Technical Society of the Machine Industry and the Electrical and Ultrasonic Machining of Metals, held in Leningrad. The articles deal with the latest methods and results in the field of electrical and ultrasonic machining of metals. New methods of machining presently being developed are described. References follow several of the articles.

Authors: A.L. S.J. Podlasov, A.T. Kravets, and A.I. Anonov. Some Problems in the Technology and Design of Machines for Electroerosion Machining of Metals 67

Bogachev, I.S. Electric-Pulse Generators of Bipolar Pulses for Electroerosion Machining of Metals 109

Machikhin, Ju.Ya. Electrical-Pulse Machining of Forging-Metal Grooves 115

Pyatinok, A.O. Intensity of Metal Removal and Surface Quality in Electrolytic Machining of Carbides 134

Dikushin, G.A. Selection of Process Regimes in Electrolytic Contour Machining 145

Gutkin, B.G. Electric-Resistance Machining of Metals 151

Yasnogorodskiy, I.Z. New Uses of Heating in Electrolytes 167

Mikhaylov, V.A. Cleaning and Degreasing of Parts and Intensification of Electroplating With the Aid of Ultrasonics 174

Goryachev, N.S. Technique of Ultrasonic Machining of Carbide Dies 183

Ustinov, V.V. Production of Magnetostrictive Transducers for Ultrasonic Machines for Machining Carbides 195

Mezhuyev, B.N. Ultrasonic Machining of Parts Made of Ceramic Materials 203

Mondrus, D.B. Ultrasonic Units Developed by OKB KTO 211

Krumbol'dt, M.N. Spot Welding with the Use of Ultrasonics 235

Babikov, O.I., and B.Ye. Mikhailov. Methods of Ultrasonic Analysis and Inspection 244

AVAILABLE: Library of Congress (TJ 1191 .P 53)

Card 4/4

(16)

YASNOGORODSKIY, V.G.

Effect of an impulse and uninterrupted ultra-high-frequency electrical field on vascular permeability. Vop.kur.fizioter. i lech.fiz.kul't no.2:42-46 Ap-Je '55. (MLRA 8:8)

1. Iz otdela fizicheskikh metodov lecheniya (zav.I.A. Abrikosov) Nauchno-issledovatel'skogo instituta fizioterapii Ministerstva zdrevookhraneniya RSFSR (dir.prof. A.N. Oborotov)

(CAPILLARY PERMEABILITY,

eff. of impulse & uninterrupted ultra-high-frequency waves)

(DIATHERMY, effects,

impulse & uninterrupted ultra-high-frequency waves on capillary permeability)

"APPROVED FOR RELEASE: 09/01/2001

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001962230003-5"

YASNOGORODSKIY, V. G.

YASNOGORODSKIY, V. G.: "The effect of continuous and pulsed ultra-high-frequency electrical fields on the permeability of the vascular walls (The speed of absorption of sodium-24 from muscle tissue). Experimental investigations." Acad Med Sci USSR. Moscow, 1956. (Dissertation for the Degree of Candidate in Medical Sciences)

Source: Knizhnaya letopis' No. 28 1956 Moscow

YASNOGORODSKIY, V.G.

YASNOGORODSKIY, V.G.

Some problems in using high-frequency and ultrahigh-frequency  
electrotherapy. Vop.kur., fizioter. i lech.fiz.kul't. 22 no.3:  
82-87 My-Je '57. (MIRA 11:1)

1. Iz Nauchno-issledovatel'skogo instituta fizioterapii Ministerstva  
zdravookhraneniya RSFSR (dir. - prof. A.N.Obrosoy)  
(DIATHERMY)



ABRIKOSOV, Ivan Alekseyevich, prof., [deceased], YASNOGORODSKIY, Viktor  
Georgiyevich, kand. meditsinskikh nauk.; YEREMENKO, P.I., red.;  
KHAKNIN, M.T., tekhn. nauk

[Technology in the service of medicine; new medical instruments  
and methods] Tekhnika na sluzhbe meditsiny; novye meditsinskie  
pribory i metody. Moskva, Gos. izd-vo med. lit-ry, 1958. 95 p.  
(MIRA 11:11)

(MEDICAL INSTRUMENTS AND APPARATUS)

~~Yasnogorodskiy, V.G.~~  
YASNOGORODSKIY, V.G.

"Long-acting short wave therapy in disorders of the peripheral circulation" [in German] by Helmut Wolf. Reviewed by V.G. Iasnogorodskii. Vop.kur.fizioter. i lech.fiz.kul't. 23 no.1: 86-87 '58. (MIRA 11:3)

(SHORT WAVE THERAPY)

(BLOOD--CIRCULATION, DISORDERS OF)

(WOLF, HELMUT)

YASNOGORODSKIY, V.G.

Conference on the problems in the use of radioelectronics in  
medicine and biology. Vop. kur., fizioter. i lech. fiz. kul't.  
24 no.6:563-567 N-D 159. (MIRA 15:1)

(ELECTRONICS IN MEDICINE...CONGRESSES)

(ELECTRONICS IN BIOLOGY...CONGRESSES)

OBROSOV, A.N.; YASNOGORODSKIY, V.G.

Impulse oscillations in physical therapy. Vop. kur., fizioter. i  
lech. fiz. kul't. 25 no.2:101-109 Mr-Apr '60. (MIRA 13:9)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta kurort-  
nologii i fizioterapii.  
(ELECTROTHERAPEUTICS)

YASNOGORODSKIY, V.G.; STUDNITSYNA, L.A.; OLEPIRENKO, V.I.; SAFIULINA, S.N.;  
NAZAROVA, I.N.

Treatment of hypertension patients with a ultrahigh-frequency electric  
pulse current. Vop. kur., fizioter. i lech. fiz. kul't. 25 no.2:114-  
119 Mr-Apr '60. (MIRA 13:9)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta kurortologii  
i fizioterapii v Moskve (dir. - kandidat meditsinskikh nauk G.N.  
Pospelova).

(ELECTROTHERAPEUTICS)

(HYPERTENSION)

OBROSOV, A. N., and YASNOGORODSKIY, V.G.

Academy of Medical Sciences USSR, Solyanka 14, Moscow - "A  
new method of physical therapy - pulsed electric field ultra-  
high frequency" (21)

Report to be submitted for the 4th Intl. Conf. on  
Medical Electronics, New York, N. Y., 16-21 July 1961

YASNOGRADSKIY, V.G.

Apparatus for microwave therapy. Vop.kur., fizioter. i lech.  
fiz.kul't. 27 no.5:451-452 S-0'62, (MIRA 16:9)  
(MICROWAVES--THERAPEUTIC USE)

BRILAKH, M.M.; YASNOGORODSKIY, V.I.

Introducing the chill-molding machine for complex castings by small  
lots. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekhn.inform.  
18 no.5:22-23. Ny '65. (MIRA 18:6)



BRILAKH, M.M.; YASNOGORODSKIY, V.I.

Self-annealing of cast iron in liquid media. Lit. proizv. no.8:  
21-24 Ag '62. (MIRA 15:11)

(Cast iron--Heat treatment)  
(Annealing of metals)

YASNOGORODSKIY, V.I.

Castability as a basis for the quality control of cast iron.  
Lit. proizv. no.1:28-30 Ja '63. (MIRA 16:3)  
(Iron founding—Quality control)

YASNOGORODSKIY, V.I.

Nature of the formation and ways of preventing rejects of cast iron  
shot. Lit. proizv. no.8:7-8 Ag '64. (MIRA 18:10)

YASNOGORODSKIY, V.I.; BLAZHIYEVSKIY, V.F.

Effect of the chemical composition of cast iron and hydrodynamic  
factors of casting on the output of a suitable product and on the  
mechanical properties of shot. Lit. proizv. no.1:7-8 Ja '65.  
(MIRA 18:3)

YASNOGORODSKIY, V.I., inzh.

Characteristics of shrinkage phenomena in cast iron. Lit.  
proizv. no.1:28-30 Ja '66. (MIRA 19:1)

YASNOPOL'SKAYA, A.A.

**AUTHOR:**

LIFSHITS, T.M., YASNOPOL'SKAYA, A.A.

PA - 2583

**TITLE:**

Interdepartmental Seminar on Cathode Electronics. (Meshduvedomstvennyy seminar po katodnoy elektronike, Russian)

**PERIODICAL:**

Radiotekhnika i Elektronika, 1957, Vol 2, N.: 2, pp 253-255 (U.S.S.R.)  
Received: 4 / 1957  
Reviewed: 7 / 1957

**ABSTRACT:**

The Commission for Cathode Electronics of the Electronic Sector of the All-Union Soviet for Radio Physics and Radiotechnology of the Academy of Science of the U.S.S.R. decided to establish an interdepartmental Seminar for Cathode Electronics. This seminar will investigate the situation and the possibilities of development of the main fields of scientific research in cathode electronics, and will further supervise work carried out within the field of the physics of various kinds of electron emission and cathode technology carried out by academical scientific research institutes, in construction offices, works laboratories, and institutes. On December 12th 1956 lectures were delivered on the physics of photoelectrons and secondary electron emission. A.R. SHUL'MAN spoke about "Some Peculiarities of the Secondary Electron Emission of Metals and Dielectrics". He gave a survey of the work carried out in recent years within this field. N.L. YASNOPOL'SKIY and A.E. DYKLOP spoke about the method worked out in the laboratory IRE of the Academy of Science of the U.S.S.R. for measuring the coefficient of secondary electron

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PA - 2583

Interdepartmental Seminar on Cathode Electronics.

emission  $\sigma$  of dielectric targets used in electron radiation tubes. A.A. MOSTOVSKIY spoke about the "Tendency of Research Work within the fields of the Exterior and Interior Photoeffect and Secondary Emission". I.V. AL'TOVSKIY dealt with "Some Peculiarities of Photoelectron Emission of Oxygen-Cesium Electrodes".

ASSOCIATION: Not given  
PRESENTED BY:  
SUBMITTED: 14.12. 1956  
AVAILABLE: Library of Congress

Card 2/2

YASNOPOL'SKAYA, A-A.

AUTHOR: KUL'VARSKAYA, B.S., YASNOPOL'SKAYA, A.A. PA - 2602.  
 TITLE: Inter-Departmental Seminar on Cathode Electronics. (Mezhdudovost-  
 venny seminar po katodnoy elektronika, Russian).  
 PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol 2, Nr 3, pp 357 - 358  
 (U.S.S.R.)  
 Received: 5 / 1957 Reviewed: 6 / 1957  
 ABSTRACT: On January 7 th 1957 four lectures were delivered. V.A.Simonov  
 spoke about "Thermoemission with impulse glowing". During the passage  
 of current impulses of great density ( $10^5 \pm 10^7$  A/cm<sup>2</sup>) through metal  
 wire, high currents occurred between the wire and the adjoining  
 electrodes. According to the authors' opinion, they are due to the  
 discharge along the wire. By means of a mass spectrometer, hydrogen-  
 ions, oxygen-, carbon-, and nitrogen ions were recorded during these  
 proceedings. The phenomena are explained by the impulse description  
 of the gas and by those processes which are due to the expansion  
 of rapidly forming ion - electron plasmata. Thus, Lebedev's and  
 Khaykin's theory of the existence of an anomalous thermo-electron  
 emission and the occurrence of deviations from Langmuir's law during  
 the impulse glowing of metal wires has become untenable. N.I.  
 Malyshev reported about: "State and tendency of the investigations  
 on the elaboration of L-cathodes." The cathode has the following  
 data: 4 W power consumption, 1000° C working temperature, the  
 current density at this temperature amounts to 6 - 7 A/cm<sup>2</sup> (with

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Inter-Departmental Seminar on Cathode Electronics. PA - 2602  
impulse operation), operation time 5000 hours at 1000° C, evaporation velocity of barium -  $8 \cdot 10^{-4}$   $\mu$ /100 hours.

A.V.Merozov spoke about "The technology of the production of tungsten barium cathodes". The three types differ in form and in the manner in which the single parts are connected. Operating time more than 100 hours. Current densities up to 5 A/cm<sup>2</sup>.

B.N.Popov spoke about "Thorium oxide cathodes and their application in electric vacuum appliances." Metal-ceramic cathodes were developed which can be used in the magnetron of the centimeter range. The main advantage is their moderate sparking.

ASSOCIATION: Not given.

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress.

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YASNOPOLSKAYA, A.A.

109-4-20/20

AUTHOR: Kul'vanskaya, B.S., Yasnopol'skaya, A.A. and Alpatova, N.M.

TITLE: Interdepartmental Seminar on Cathode Electronics. (Mezh-duvedomstvennyy seminar po katodnoy elektronike)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.2, No.4,  
pp. 511 - 512 (USSR).

ABSTRACT: The seminar took place on February 4-5, 1957, in the Institute of Radio-engineering and Electronics of the Soviet Academy of Sciences and was devoted to the problem of cathaphoretic coating of oxide cathodes and anaphoretic coating of heaters. The following papers were read, of which short summaries are given:  
Lavrov, I.S. "Electrophoretic processes in organic media."  
Berger, A.Yu. "New developments in the technology of the cathaphoretic coating of cathodes with carbonates."  
Parkhomenko, V.S. "Mechanisation and automation of the cathaphoretic coating of cathodes with carbonates."  
Vostrov, G.A. "Emissive and other properties of cathaphoretically-coated oxide cathodes."  
Bashuk, R.P. "Electrophoretic coating of heaters with aluminium oxide."  
Gandelsman, I.L. "Production technology of the anophoretic Cardl/2 coating of heaters."

Interdepartmental Seminar on Cathode Electronics. 109-4-20/20

Shalabutov, Yu.K. "Transient phenomena in radio-frequency vacuum tubes."

SUBMITTED: February 23, 1957.

AVAILABLE: Library of Congress.

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YASNOPOL'SKAYA, A.A.

109-5-21/22

AUTHOR:

YELINSON, M.I., YASNOPOL'SKAYA, A.A.

TITLE:

Interdepartmental Seminar for Cathode Electronics. (Mezhdovedomstvennyy seminar po katednoy elektronike, Russian)

PERIODICAL:

Radiotekhnika i Elektronika, 1957, Vol 2, Nr 5, pp 666-668 (U.S.S.R.)

ABSTRACT:

At the 4. meeting held on the 4.3.1957 lectures were delivered on the autoelectron emission.

- 1.) M.I.YELINSON showed that the present conceptions concerning the molter effect process are not able to explain all known experimental facts. The lecturer suggested a new point of view (explained in detail in Radiotekhnika i Elektronika, 1957, Vol 2, Nr 1, p 75), which is based on an assumed essential heterogeneous potential distribution within the dielectric plate.
- 2.) V.N.SHREDNIK dealt with measurements carried out concerning the zirconium work function in tungsten.
- 3.) A.S.SOBOLEVA spoke about the investigation of autoelectron emission in dependence on hydrogen pressure in a device consisting of a flat anode and a conical or semispherical cathode.
- 4.) V.A.SIMONOV investigated the discharge process in the vacuum in the presence of a subignition spark.

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109-5-21/22

Interdepartmental Seminar for Cathode Electronics.

- 5.) I.N.SLIVKOV described the investigation of breakdown in the vacuum in the case of flat and spherical steel electrodes.
- 6.) A.I.KLIMIN reported on the investigations in the electron projector.
- 7.) G.A.BOGDANOVSKIY spoke about the measuring of resistance on a tungsten contact when opening the electrodes.

ASSOCIATION: Not given  
PRESENTED BY:  
SUBMITTED: 25.3.1956  
AVAILABLE: Library of Congress

Card 2/2

16

**AUTHORS:** Vasil'yev, G.F., Politova, N.M., Shabel'nikova, A.E.,  
Pervova, L.Ya. and Yasnopol'skaya, A.A.

**TITLE:** Interdepartmental Seminar on Cathode Electronics (The 11th Meeting) (Mezhdudovodstvennyy seminar po katodnoy elektronike) (11-e zasedaniye)

**PERIODICAL:** Radiotekhnika i elektronika, 1959, Vol 4, Nr 4, pp 731 - 732 (USSR)

**ABSTRACT:** A meeting of the seminar took place on December 1, 1958 at the Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio-engineering and Electronics of the Ac.Sc.USSR). During the meeting 8 papers were read. Yu.G. Plushinskiy read a paper entitled: "Kinetics of the Adsorption of Oxygen on the Surface of Tungsten". The second paper, by I.M. Dykman and S.M. Pekar, dealt with "The Adsorption Photo-effect of Semiconductors in the Region of the Exciton Light Absorption". The paper by T.L. Matskevich was devoted to "The Problem of the Secondary Electron Emission of Fine Films of a Number of Organic Substances". The problem of "Surface Ionisation in a Strong Electric Field on a Surface with a Non-homogeneous Work Function" was considered by E.Ya. Zandberg and N.I. Ionov. I.N. Bakulina and N.I. Ionov read a paper entitled "Determination of the Electron Attachment Energy and of the Potentials of Atoms by the Method of Surface Ionisation". M.L. Yasnopol'skiy and A.P. Alekseyev dealt with the problem of "Passage of Steady-state Currents Through a Dielectric When the Current Carriers Are Introduced Through One of the Contacts by Means of Electron Bombardment". The lecture by D.A. Gaspichev and K.G. Vukin discussed the following - "The Possibility of the Analysis of the Total-energy Distribution of Electrons in a Quasi-spherical Condenser". The work by M.L. Kapitsa, S.A. Fridrikhov and A.R. Shul'man dealt with an investigation of the secondary electron emission and the characteristic energy losses of a number of dielectrics (glass, mica, fluorite and alkali-haloid monocrystals).

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USCIBL-DC-60997

SOV/109-4-7-24/25

AUTHORS: Alekseyeva, A.P., Vikhlyayeva, R.P., Shabel'nikova, A.E.  
and Yasnopol'skaya, A.A.

TITLE: Interdepartmental Seminar on Cathode Electronics  
(14th Meeting) (News Item)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 7,  
pp 1215 - 1216 (USSR)

ABSTRACT: The meeting of the seminar took place on March 2, 1959,  
at the Institut radiotekhniki i elektroniki AN SSSR  
(Institute of Radio-engineering and Electronics of the  
Ac.Sc., USSR). During the meeting, 8 articles were read  
and discussed. The first article, by A.R. Shul'man  
and Yu.A. Morozov, was devoted to the investigation of  
the elastic reflection of the electrons having energies  
ranging from 100 - 2 000 eV from 10 different elements  
(Cr, Ni, Cu, Ge, Mo, Mg, Ta, Pt, Au, C).  
Ye.S. Mashkova and G.A. Chetverikova read a paper on  
"Investigation of the Temperature Dependence of the  
Secondary Emission Coefficient of Monocrystals of Barium  
Titanate and Lead Titanate".

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SOV/109-4-7-24/25

Interdepartmental Seminar on Cathode Electronics (14th Meeting)  
(News Item)

M.V. Sinel'nikov reported on his investigation of the electron emission of a pure metal surface at room temperatures.

A paper entitled "Electro-microscopic Investigation of the Emission of Pressed Cathodes" was read by Ye.M. Dubinina.

A.A. Gugin and B.N. Popov reported on "Influence of Oxygen on the Emission of the Cathodes Prepared From the Salts of Barium and Calcium Having High Melting Points". B.Ch. Dyubua and B.N. Popov dealt with "Some Properties of the Barium-titanium System".

The results of an investigation of the field emission from tungsten monocrystals by pulse technique were presented by I.I. Gofman and G.N. Shuppe.

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Interdepartmental Seminar on Cathode Electronics (14th Meeting)  
(News Item) SOV/109-4-7-24/25

V.M. Gavriilyuk and Yu.S. Vedula presented a paper dealing with "Adsorption of Barium and Barium Oxide on Tungsten Surfaces".

Card 3/3

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5/109/60/005/05/020/021  
R140/EV13

**AUTHORS:** Basaleysva, N.Ya., Vikhlyayeva, M.P., Zhdan, A.G.,  
Zernov, D.V., Kofanova, L.L., Keryova, L.Ya.,  
Mitova, K.M., Polyakova, M.A., Pasy, B.M., Spivak, G.V.,  
Shabel'nikova, A.E. and Yasnopol'skaya, A.A.

**TITLE:** Report on the Ninth All-Union Conference on Cathode  
Electronics

**PERIODICAL:** Radiotekhnika i elektronika, 1960, Vol 5, Nr 5,  
pp 866-879 (USSR)

**ABSTRACT:** This conference took place in Moscow from 21-28th  
October 1959 with the participation of Soviet scientists  
and guests from Hungary, Eastern Germany, the Chinese  
People's Republic and Czechoslovakia. The chairman of  
the organization committee was Academician Vekshinskiy.  
The report consists of brief abstracts of 125 papers  
presented at the plenary sessions and the sections of  
the conference. 15 Reports were presented in the section  
on surface properties of solids dealing with electron  
adsorption and structural properties of active surface  
films. Electron-optical studies of "patch fields" on  
emitting surfaces were discussed. 6 Papers on the

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physics of semiconductor cathodes were given in the  
section on thermionic emission. 17 Papers were  
presented in the section on photoelectric emission.  
Many papers discussed industrial technology of photocells  
and multipliers. 16 Papers were presented at the section  
on secondary-electron emission. The section on field  
emission heard 11 papers discussing pulse field  
emission at high current densities, surface phenomena,  
field emission of semiconductors and the "condenser"  
cathode. More than 30 papers and brief communications  
were presented at the section on properties, new types  
and technology of cathodes, relating to the technology  
of various types of cathodes, their behaviour in  
practical devices and the operating mechanisms of  
individual cathodes. 19 Papers were given at the  
section on interaction of solid bodies with streams of  
charged particles and residual gases. Notes of  
conference discussion indicated that several sharp and  
critical exchanges of views took place.

Card 2/2

26.2312  
93120 (1003, 1137, 1140)

S/109/60/005/008/018/024  
E140/E355

AUTHORS: Yelinson, M.I., Gor'kov, V.A., Yasnopol'skaya, A.A.  
and Kudintseva, G.A.

TITLE: Pulsed Field Emission at High Current Densities

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol. 5,  
No. 8, pp. 1318 - 1326 + 1 plate

TEXT: The article concerns the geometry of the widely-used point emitter, as sketched in Fig. 1. The experiments described in the literature have neglected the influence of the cone angle  $\alpha$ . Yet this angle has a substantial effect, for the following reasons: it determines the azimuthal field distribution and thus the total emission cone  $\gamma$ ; more fundamentally, a larger angle improves the heat conduction away from the tip and thus reduces the possibility of a vacuum arc forming; the angle affects the stability of the tip geometry by counteracting surface migration of atoms during heat treatment and by influencing the field distribution close to the emitter it affects the character of ion bombardment of the emitter surface. The present work is concerned primarily

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S/109/60/005/008/018/024  
E140/E355

# Pulsed Field Emission at High Current Densities

with the geometry of the cone angle  $\alpha$  and the pulse field emission of a new class of refractory alloy emitters, using  $\text{LaB}_6$  and  $\text{ZrC}$  points. Tungsten points were also studied as a control. Fig. 2 shows the technique for the successive enlargement of the angle  $\alpha$ . Successive etches are made in caustic soda, the tip of the point being masked with globules of acrylic resin. Microphotographs of typical tips, showing a range of angles between  $15^\circ$  and  $85^\circ$  are reproduced in Fig. 3 (note: the scale of c is 10X smaller than the others). It was assumed that Drechsler's approximation (Ref. 4) is valid and therefore only those measurements were employed in the final treatment which fitted this approximation fairly exactly. The volt-ampere characteristics obtained are typified in Fig. 9b, where the rectilinear characteristic at low current densities agrees with the theory of metal field emission. At high current densities there is an appreciable

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S/109/60/005/008/018/024  
E140/E355

#### Pulsed Field Emission at High Current Densities

downwards deviation from rectilinearity. The density at which this deviation occurs is distributed over a wide range - from  $3 \times 10^6$  to  $3.4 \times 10^7$  A/cm<sup>2</sup>. The working densities of field emission current obtained from the refractory alloys is at least as good as that from tungsten. The deviation of the characteristic from the theoretical is in the opposite direction from the results of Ref. 1, where the deviation is in the direction of higher current densities.

An interesting result of the work is the dependence of pre-arc current density on cone angle  $\alpha$ . The relationship is plotted in Fig. 11; the points marked x are the experimental points and the points marked 0 have been corrected for the mean radius of the emitters. The experimental data obtained exceed the theoretical predictions (Ref. 7). Two possible reasons are that the theory neglects thermal radiation and formulates the boundary conditions for large angles  $\alpha$  incorrectly. The deviation from rectilinearity at high current densities, noted above, may be due to the influence of space

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S/109/60/005/008/018/024  
E140/E355

Pulsed Field Emission at High Current Densities

charge. Another possible reason is that the shape of the potential barrier is not in accordance with the classical image force theory (see the abstract of the previous article - pp. 1315 - 1317). The present authors consider the space charge explanation more likely, and advance a number of reasons. However, the presence of a segment of the characteristic with increased rate of growth of current density requires further consideration. The results indicate that the greater stability and higher working current densities obtained from points with a large cone angle  $\alpha$  are advantageous. There are 12 figures and 9 references: 3 Soviet and 6 non-Soviet.

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S/109/60/005/008/018/024  
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# Pulsed Field Emission at High Current Densities

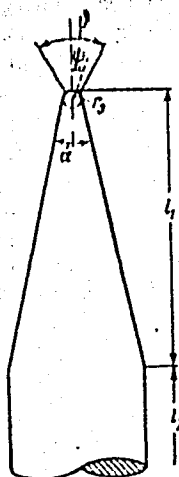


Рис. 1. Основные геометрические параметры острого конуса

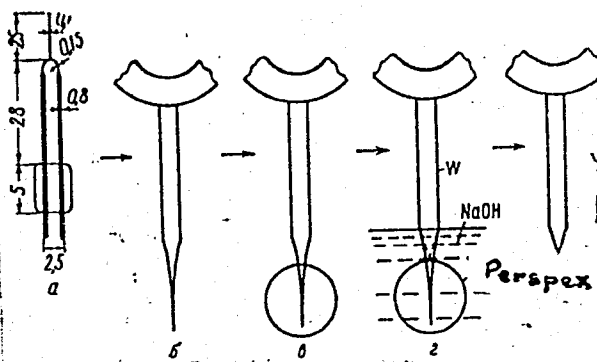
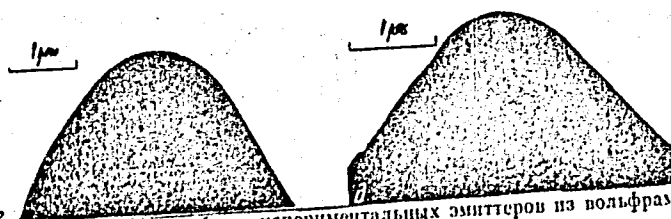
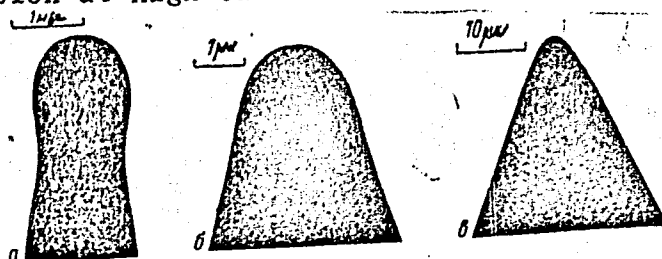


Рис. 2. Метод изготовления экспериментальных эмиттеров с различными углами конуса  $\alpha$ :  
а — исходная заготовка в собранном виде; б — остроконечность после первого травления; в — остроконечность с нанесенной сферой из плексигласа; г — второе травление остроконечности; д — окончательный вид эмиттера

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Pulsed Field Emission at High Current Densities



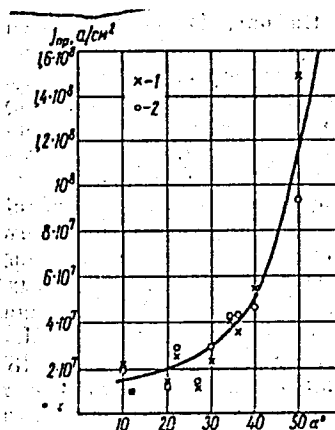
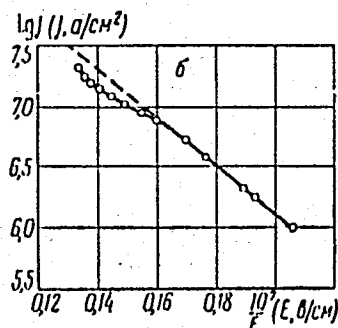
Card 6/7

Рис. 3. Микрофотографии экспериментальных эмиттеров из полифрама с различными углами конуса:  
а — 15°; б — 30°; в — 47°; г — 60°; д — 85°



S/109/60/005/008/018/024  
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Pulsed Field Emission at High Current Densities



SUBMITTED: December 21, 1959

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S/109/60/005/012/035/035  
E192/E382

AUTHORS: Vikhlyayeva, R.P., Kul'varskaya, B.S.,  
Shabel'nikova, A.E. and Yasno~~pol~~'skaya, A.A.  
TITLE: Interdepartmental Seminar on Cathode Electronics  
(16th Session)

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol. 5,  
No. 12, pp. 2074 - 2075

TEXT: The Sixteenth Interdepartmental Seminar on Cathode  
Electronics took place on June 6, 1960.


Five papers were read:

"Investigation of the Influence of the Adsorption of Gases  
and Their Mixtures on the Work Function of Semiconductors"  
was discussed in a paper by E.Kh. Yenzikeyev et al. This paper  
gave the results of the measurement of the work function in  
Ge, CuO, NiS, MnO<sub>2</sub> and other materials in the presence of various  
adsorbed gases and vapours (O<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>O, etc.).

A.V. Druzhinin reported on the influence of the contact fields  
of the spots on the current taken from the cathode operating

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S/109/60/005/012/035/035  
E192/E382



Interdepartmental Seminar on Cathode Electronics  
(16th Session)

in the space-charge regime. On the basis of his experimental data the author showed that the main factor leading to an increase in the perveance of a diode with a pressed cathode is the increase in the intensity of the activated barium stream.

The third paper was read by P.V. Timofeyev and R.M. Aranovich. They reported the results of their investigation of a cold cathode made of magnesium oxide. They constructed electron tubes with magnesium-oxide cathodes (on a nickel base) coated with a layer of porous magnesium oxide having a thickness of 50  $\mu$ . These tubes could operate in various amplifying devices and could give an anode current up to 10 mA. The useful life of these tubes is more than 10 000 hours. The authors also demonstrated such a tube in a low-frequency amplifier.

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In the paper "Secondary-emission Characteristics of Antimony Sulphide and its Analogues" by V.L. Makedonskiy, it was shown that the secondary emission coefficient of the layers of  $Sb_2S_3$ ,

$Sb_2Se_3$  and  $Sb_2Te_3$  does not exceed 1.3.

A paper by V.A. Grodko et al entitled "Influence of the Difference of the Work Functions of the Electrodes of a Thermionic Converter on Its Output Parameters" presented the results of a theoretical analysis of the dependence of the output power and efficiency of a converter on the difference between the work functions of the anode and cathode (the above paper is published in the present issue of the journal).

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YELINSON, M.I.; DOBRYAKOVA, F.F.; KRAPIVIN, V.F.; MALINA, Z.A.; YASNOPOL'SKAYA,  
A.A.

Concerning the theory of field emission and thermoionic field  
emission of metals and semiconductors. Radiotekh. i elektron  
6 no.8:1342-1353 Ag '61.

(MIRA 14:7)

(Field emission) (Metals--Electric properties) (Semiconductors)

YASNOPOL'SKAYA, A.A.; VIKHLYAYEVA, R.P.; YEKIMENKO, T.M.

Nineteenth interdepartmental conference on cathode electronics.  
Radiotekh. i elektron 6 no.8:1407-1408 Ag '61. (MIRA 14:7)  
(Cathodes) (Electronics--Congresses)

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S/109/61/006/010/019/027  
D/246/D302

9,3130 (1003, 1138, 1160, 1137)

AUTHOR: Basalayeva, N.Ya., Yekimenko, T.M., Yelinson, M.I.,  
Zernov, D.V., Savitskaya, Ya.S., and Yasnopol'skaya,  
A.A.

TITLE: Investigating some properties of a cold magnesium-  
oxide cathode with self-enhancing emission

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 10, 1961,  
1727 - 1740

TEXT: The aim of this work was to study some properties of cold  
magnesium oxide cathodes which were not investigated in technical  
literature. In the experimental apparatus, cathodes made by cata-  
phoresis and spraying were used, with varying thicknesses (6 - 35  $\mu$   
and 12-60  $\mu$ , respectively). They both had high porosity (80 % of  
the total volume). They had nickel substrate of the type NM (mag-  
nesium added) and platinized nickel. The instrument used was a  
diode with tubular cathode of oval cross-section and a mesh-anode.  
The starter used was a thin (100  $\mu$   $\phi$ ) tungsten filament. The ca-

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Investigating some properties ...

thode was activated by baking it for 10 min. at 850°C. Number of specimens approx. 400. Their volt-ampere characteristics corresponded to those in the literature. a) To investigate the effect of oxygen, specimens were oxidized in cycles, at 850°C in atmosphere, starting at 0.1 mm of Hg pressure. Then the max. stable current,  $I_e$ , was measured with the corresponding potential difference,  $U_a$ , between anode and cathode.  $I_e/U_a$  was then taken as an approximate criterion of the quality of the cathode. Fig. 4 shows  $I_e/U_a$  as a function of the number of cycles (N) for cathaphoresis cathodes. Fig. 5 - the same for sprayed cathodes. The same types of curves were obtained for platinized nickel substrate (Pt layer ~50  $\mu$  thick), which proves that NiO layer does not play any significant role in the mechanism of emission. b) Investigation of temperature-dependence showed that there are both reversible and irreversible changes of the emission. If the cathode is heated higher than 400°C, irreversible processes start. It was shown that heating up the MgO layer is responsible for limiting current density, hence, improvement by its cooling. c) The time dependence of the starting process was also investigated. It was shown that it is sufficient to

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D246/D302

Investigating some properties ...

illuminate the cathode to start the cold emission. On the other hand the decrease of the incandescence of the starter electrode greatly increases the starting time. d) The influence of the presence of a magnetic field is shown in Fig. 14. e) The increase in thickness (up to 30 - 40  $\mu$ ) of sprayed cathodes improves their emissive properties. The opposite is true for cataphoresis cathodes, but comes from single centers, situated in cracks for thick ones. g) By positively charging up the MgO layer, it was impossible to start the emission, thus it is necessary to introduce a small amount of free electrons for starting. At the end the authors discuss the various hypotheses proposed in technical literature to explain the effect and state they intend to test them in their future experiments. There are 14 figures and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: D. Dobischek, Electronics and Computers, 7, 5, 26, 1959; A.M. Skellett, B.G. Firth, D.W. Mayer, Proc. I.E.E., 47, 10, 1704, 1959; Y. Mizushima, Y. Igarashi, T. Imai, J. Phys. Soc. Japan, 15, 4, 729, 1960; H.N. Daglish, Proc. I.E.E., 108B, 37, 103, 1961.  
SUBMITTED: May 23, 1961  
Card 3/6

YASNOPOL'SKAYA, G.G.

Use of geobotanical methods in the prospecting of peat bogs of  
Siberia. Trudy MOIP 8:102-107 '64.

(MIRA 17:12)

KUZNETSOV, Nikolay Timofeyevich; SHUSTOVA, I.B., red.; YASNOPOL'SKIY,  
N.F., red.

[Along the trails of wandering rivers; a hydrologist's  
notes] Po sledam bluzhdaiushchikh rek; zametki gidrologa.  
Moskva, Izd-vo "Znanie," 1965. 78 p. (Narodnyi universitet:  
Estestvenno-nauchnyi fakul'tet, no.8) (MIRA 18:8)

ROZHNOVA, Mariya Aleksandrovna; ROZHNOV, Vladimir Yevgen'yevich,  
doktor med. nauk prof.; YASNOPOL'SKIY, N.F., red.

[Hypnosis and "miraculous healings"] Gipnoz i "chudesnye  
istseleniia." Moskva, Znanie, 1965. 237 p.  
(MIRA 18:12)

YASNOPOLO'SKIY, N. I.

Secondary emission of electrons. N. I. Yasnopolo'skiy and G. A. Tyagunov. *J. Tech. Phys. (U. S. S. R.)* 9, 1573 (1969).—Theoretical. Secondary electrons are produced in metals by Coulomb interaction between primary electrons and free electrons, and in dielectrics by ionization. A general consideration of these mechanisms allows an estn. of the relation between the no. of secondary electrons and their energy. The results are in a qual. agreement with expts. J. J. Bikerman

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

62-1

AUTHOR: YASNOPOL'SKIY, N.L., DYKLOF, A.E. 109-6-17/17  
TITLE: Interdepartmental Seminar on Cathode Electronics. (Mezhduvedomstvennyy seminar po katodnoy elektronike, Russian)  
PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol 2, Nr 6, pp 814-816 (U.S.S.R.)  
ABSTRACT: At the 5. meeting on the 8. April 1957 the following lectures were delivered:  
M.M.VUDYNSKIY showed that irradiation of the screen surfaces of electron beam tubes by a de-focussed bundle leads to the production of three kinds of dark spots on the screen. On this occasion the surface potential of the non-conductor changes in two stages.  
I.P.ZAKIROVA and S.A.FRIDRIKHOV gave a report on the kinetics of the production of a charge on the non-conductor surfaces (glass, mica) under the effect of a bombardment by electrons (in the interval of from 20 to 15000 eV).  
G.S.KOZINA spoke about the peculiarities of the secondary emission of thin free aluminum oxide films (0.05 - 0.2  $\mu$ ).  
M.M.VUDYNSKIY gave a short report on the dependence of the coefficient of secondary electron emission upon the angle of incidence of the primary electrons for mica and semiconductor glass.

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Interdepartmental Seminar on Cathode Electronics.

109-6-17/17

V.B.KRUSSEER gave a survey of the history, the present stage, and the ways of development of transmission television tubes in the U.S.S.R. He indicated the ways and means of further development. (With 3 Slavic References).

ASSOCIATION: Not given  
PRESENTED BY:  
SUBMITTED: 20.4.1957  
AVAILABLE: Library of Congress

Card 2/2

YASNOPOL'SKIY, N.L.

109-1-16/18

AUTHORS: Yasnopol'skiy, N.L. and Alekseyeva, A.P.

TITLE: Mechanism of the Operation of the Cathode-Ray, Barrier-Grid Storage Tubes for Digital Computers (Mekhanizm deystviya elektronno-luchevykh zapominayushchikh trubok s setkoy-bar'erom dlya tsifrovyykh schetnykh mashin)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol.III, Nr 1, pp.142-154 (USSR)

ABSTRACT: One of the main factors limiting the performance of a barrier-grid storage tube is the redistribution of its secondary electrons. During the recording or reading or regeneration of a "unity", the secondary electrons are emitted from the bombarded element and return to the surface of the target in the form of an electron "shower" which envelops the neighbouring elements. Electrons of the "shower" impinge primarily on the "zero" elements and discharge them. This phenomenon can be referred to as the parasitic discharging. This phenomenon leads, after a large number of cycles, to the conversion of the neighbouring "zeros" into "unities". The maximum number of possible cycles can be expressed by:

$$\gamma = \frac{Q_{01}}{Q_0} \quad (1)$$

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Mechanism of the Operation of the Cathode-Ray, Barrier-Grid Storage Tubes for Digital Computers.

where  $Q_{01}$  is the charge density which should be taken from the surface of a "zero" element in order to convert it into a "unity", and  $Q_6$  is the charge removed by the electron shower during one cycle. The problem was investigated experimentally by means of a special tube shown in Fig.1. The grid C was situated at a distance of  $65\mu$  from the target and consisted of a row of tungsten wires having a diameter of  $30\mu$  and a pitch of  $250\mu$ . The target was in the form of a molybdenum glass plate, coated with a layer of oxidised aluminium. The secondary electron coefficient for the electron beam having an energy of  $U_n = 1700$  V was equal to 2.0. The target had a circular spot in the centre and two concentric rings. The central spot, O, simulated a "unity" element, while the first ring, A, simulated the separating space between a "zero" and a "unity" element. The second ring, B, simulated

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# Mechanism of the Operation of the Cathode-Ray, Barrier-Grid Storage Tubes for Digital Computers.

"zero" elements. The experimental results showing the parasitic discharge current for the A and 5 rings as a function of the grid voltage  $U$  are shown in Figs. 2 and 3 respectively. Fig. 4 shows the parasitic discharge current for the 5 ring as a function of the potential of the centre spot. Fig. 5 gives the values of the secondary emission coefficient as a function of the potential of the centre element (the element is bombarded by the electron beam). On the basis of the curves of Fig. 5 it is possible to derive a formula for  $\gamma$ , which is in the form:

$$\gamma = \frac{c_0(U_0 - U_{01})}{Q_5} = \frac{U_0 - U_{01}}{\left[ \frac{t_c}{t_0} \cdot \frac{j_{\delta c}}{I_n} + \frac{t_p}{t_0} \cdot \frac{j'_{\delta p}}{I_n} \cdot f\left(\frac{t_p}{t_0}, w_0\right) \right] S W_0}, \quad (7)$$

where  $W = j_n t_0 / c_0$ ,  $U$  is the potential of the "zero" element,  $U_{01}$  is a potential corresponding to the conversion

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Mechanism of the Operation of the Cathode-Ray, Barrier-Grid  
Storage Tubes for Digital Computers

of a "zero" into a "unity",  $S$  is the area of a spot under the beam,  $t_c$  is the reading time,  $t_p$  is the regeneration time,  $j_{\delta c}$  is the parasitic current density during the reading,  $c_0$  is the capacitance of the dielectric layer per unit area and  $j_n$  is the current density in the electron beam. Various parameters of Eq.(7) were investigated experimentally and the results are shown in Figs.6-12. From the above it is concluded that the parasitic discharging is a maximum when the potential of the storage element and the potential of the separating element are near to the grid potential. It was also found that for a given level of the output signal it is possible to find optimum values of the dielectric layer capacitance and the beam current and the corresponding number of the cycles. If the signal level can be reduced, the maximum number of cycles can be increased. Thus, if the recording-regeneration process is conducted in the known equilibrium regime, the number of cycles can be

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109-1-16/18

Mechanism of the Operation of the Cathode-Ray, Barrier-Grid  
Storage Tubes for Digital Computers.

increased 5 to 10 times. The authors express their grati-  
tude to Corresponding Member of the Soviet Academy of  
Sciences, D. V. Zernov for his interest and attention. There  
are 12 figures and 5 references, 2 of which are English and  
3 Russian.

SUBMITTED: July 27, 1956 (initially) and  
May 27, 1957 (after revision).

AVAILABLE: Library of Congress

Card 5/5

SOV/109-3-10-10/12

AUTHORS: Yasnopol'skiy, N.L. and Shabel'nikova, A.E.

TITLE: On the Problem of the Exit Depth of Secondary Electrons in Dielectrics (K voprosu o glubine vykhoda vtorichnykh elektronov iz dielektrikov)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, nr 10, p 1314 (USSR)

ABSTRACT: The work deals with the problem of the exit depth of the secondary emission in an  $Al_2O_3$  dielectric, deposited on an aluminium base, as a function of the energy of the primary electrons,  $V_p$ . It was found that the depth  $\lambda$  is of the order of microns; for  $V_p$  corresponding to the maximum secondary emission (i.e. 300 - 450 V), the depth is about 0.2  $\mu$ . Furthermore,  $\lambda$  increases with  $V_p$  not only to the point of the maximum secondary emission, but tends to increase for  $V_p$  much larger than this value. The depth  $\lambda$  for a given  $V_p$  was determined from the curves of the secondary emission,  $\sigma$ , as a function of the thickness of the oxide layer; the coefficient of the secondary emission was measured by employing periodic

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SOV/109-3-10-10/12  
On the Problem of the Exit Depth of Secondary Electrons in  
Dielectrics

pulses, so that  $\sigma$  was independent of the irradiation time.  
n.b. The work was read at the eighth All-Union conference  
on cathode electronics - Leningrad, October 17 - 24, 1957.  
There are 3 Soviet references.

SUBMITTED: March 11, 1958

Card 2/2 1. Dielectrics--Theory

AUTHORS: Yelinson, M. I. and Yasnopol'skiy, N. I. <sup>46-4 -1-15/23</sup>

TITLE: On the Article by V.G. Prokhorov "On the Problem of  
Converting an Ultrasonic Image into a Visual One."  
(Po povodu stat'i V.G. Prokhorova "K Voprosu  
preobrazovaniya ul'trazvukovogo izobrazheniya v  
vidimoye".)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol.IV, Nr.1,  
p.102. (USSR)

ABSTRACT: V.G. Prokhorov in his article "On the Problem of  
Conversion of an Ultrasonic into a Visible Image,  
published in Vol.III nr.3 of "Akusticheskiy Zhurnal",  
1957, in addition to reporting experimental  
investigation of an electron-acoustic-convertor,  
discussed also mechanism of the action of the convertor.  
In connection with Prokhorov's article the present  
authors wish to point out that the mechanism of  
conversion of an ultrasonic into a visible image,  
together with the threshold sensitivity of an electron-  
acoustic tube, was discussed in detail by D.V. Zernov  
in his work "On the Mechanism of Formation of Video-  
Signals in Electron-Acoustic Convertors of Images".

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46-4-1-15/23

On the Article by V.G. Prokhorov "On the Problem of Converting an Ultrasonic Image into a Visual One."

Zernov's paper was published in a collection, nr.2, of Transactions of the Institute of Automation and Telemechanics of the Academy of Sciences of the USSR in 1952, i.e. five years earlier than the publication of V.G. Prokhorov's article. Unfortunately V.G. Prokhorov does not refer in any way to D.V. Zernov's work.

(This is a complete translation)

ASSOCIATION: Institute of Radio Engineering and Electronics, Academy of Sciences of the USSR, Moscow.  
(Institut radiotekhniki i elektroniki AN SSSR, Moskva.)

SUBMITTED: November 10, 1957.

1. Images—Conversion    2. Image converters—Applications

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YASNOPOLSKIY, N.L.

16

<sup>50V/103-A-4-24/24</sup>  
**AUTHORS:** Vasil'yev, G.F., Politova, M.M., Shabel'nikova, A.E.,  
 Pervova, L.Ya. and Yasnopol'skaya, A.A.  
**TITLE:** Interdepartmental Seminar on Cathode Electronics (The 11th  
 Meeting) (Mashduvedomatvenny seminar po katednoy  
 elektronike) (11-e sasedaniye)  
**PERIODICAL:** Radiotekhnika i elektronika, 1959, Vol 4, Nr 4,  
 pp 731 - 732 (USSR)  
**ABSTRACT:** A meeting of the seminar took place on December 1, 1958  
 at the Institut radiotekhniki i elektroniki AN SSSR  
 (Institute of Radio-engineering and Electronics of the  
 Ac.Sc.USSR). During the meeting 8 papers were read.  
 Yu.G. Plushinskiy read a paper entitled: "Kinetics of  
 the Adsorption of Oxygen on the Surface of Tungsten".  
 The second paper, by I.M. Dykman and S.M. Pekar,  
 dealt with "The Admixture Photo-effect of Semiconductors  
 in the Region of the Exciton Light Absorption". The  
 paper by T.L. Maizkyrich was devoted to "The Problem of  
 the Secondary Electron Emission of Fine Films of a  
 Number of Organic Substances". The problem of "Surface  
 Ionisation in a Strong Electric Field on a Surface with  
 a Non-homogeneous Work Function" was considered by  
 E.Ya. Zandberg and M.I. Ionov. I.M. Bakulina and  
 M.I. Ionov read a paper entitled "Determination of the  
 Electron Attachment Energy and of the Potentials of  
 Atoms by the Method of Surface Ionization". M.L.  
 Yasnopol'skiy and A.P. Alekseyev dealt with the problem  
 of "Passage of Steady-state Currents Through a Dielectric  
 When the Current Carriers Are Introduced Through One of the  
 Contacts by Means of Electron Bombardment". The lecture  
 by D.A. Ganichev and K.G. Utkin discussed the following -  
 "The Possibility of the Analysis of the Total-energy  
 Distribution of Electrons in a Quasi-spherical Condenser".  
 The work by M.L. Kapitsa, S.A. Fridrikhov and A.P. Shul'ma  
 dealt with an investigation of the secondary electron  
 emission and the characteristic energy losses of a number  
 of dielectrics (glass, mica, fluorite and alkali-haloid  
 monocrystals).

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USCIBL DC 16997

S/109/60/005/008/015/024  
E140/E355

9,4000 (1138, 1143, 1159)

AUTHORS: Yasnopol'skiy, N.L., Alekseyeva, A.P. and  
Kofanova, T.I.

TITLE: Certain Problems of Induced Conductance

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol. 5,  
No. 8, pp. 1299 - 1308

TEXT: The excited and dark conductances of thin dielectric films are studied, taking into account carrier injection from a contact capture and recombination of the carriers injected and excited in the layer, and the formation of a space-charge field. The phenomenon of induced conductance is analogous to secondary emission, while its kinetics are similar to photo-conductivity. Under the assumption that current carriers are excited uniformly throughout the film thickness, the current is carried by carriers of only a single sign (electrons) and the layer remains electrically neutral - the contact replenishes all removed carriers. Theoretical calculations indicate a current-amplification factor reaching  $10^4$  for pure monocrystalline CdS photoconductors, in place of the observed

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S/109/60/005/008/015/024  
E140/E355

# Certain Problems of Induced Conductance

value of  $10^2 - 10^3$ . According to Rose (Ref. 1) the cause is the substantial recombination and small lifetime of the excited carriers in thin layers of the order of  $1 \mu$ . Such thin layers cannot be made monocrystalline and therefore have a large number of defects, constituting centres of capture and recombination. Their density is 3 - 5 orders of magnitude greater than in monocrystalline CdS. A second suggested cause is insufficient replenishment through the contact, connected with the presence of a potential barrier at the dielectric - base boundary, which prevents electron injection into the conductivity zone of the layer. ✓

In calculating the volt-ampere characteristics, the recombination mechanism was assumed to consist of the capture of free electrons by vacant electron traps; their subsequent recombination with free holes; and recombination of free electrons with holes previously captured by vacant hole traps. The injection is connected with a theoretically ineliminable

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Certain Problems of Induced Conductance

dark current. The experimental data presented are in qualitative agreement with the mechanism described here, although the layers of  $Al_2O_3$  employed in the experiments do not constitute the most favourable material. There are 7 figures and 7 references: 5 Soviet and 2 non-Soviet.

SUBMITTED: December 21, 1959

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9.3/20 (1003, 1137, 1140)

21438  
S/109/61,000/001/017/023  
E140/E163

AUTHORS: Yasnopol'skiy, N.L., Karelina, N.A., and Malysheva, V.S.

TITLE: Certain results of the investigation of secondary electron emission from the backs of magnesium oxide emitters

PERIODICAL: Radiotekhnika i elektronika, Vol.6, No.1, 1961, pp. 146-152

TEXT: A thin-film secondary electron emitter permitting emission from the face opposite that irradiated by the primary electrons is described. Aluminium films between 100 and 1000 Å and MgO emitters deposited on them have been studied. It is shown that reduction of the Al thickness from 3000 to 350 Å permits reduction of the working potential from 11 - 18 to 3 - 4 kV at secondary emission factors of the order of 5 - 8. It has been found that under certain conditions the secondary emission from such targets can pass into a self-maintained emission. The device used is shown in Fig.1 in which K is the cathode, A - anode, K<sub>1</sub> - collector of reflected primary electrons and forward emitted secondary electrons,  $\beta$  - secondary electron emitter, Card 1/5

2

21438

S/109/61/006/001/017/023

E140/E163

Certain results of the investigation of secondary electron emission from the backs of magnesium oxide emitters

C<sub>3</sub> - mesh base of emitter, C - grid for acceleration of electrons emitted from the back of the target, K<sub>2</sub> - collector for primary electrons passing completely through the emitter and secondary electrons emitted from the back. With certain potentials in this system it is found that the secondary emission from the back of the target will increase to a value of the order of 800 I<sub>p</sub> and continue to flow after the primary beam is cut off. Initially this emission is relatively stable and easily excited. With time this behaviour deteriorates, apparently connected with impoverishment of the secondary-emission properties of the MgO layer. Possible explanations are connected with the formation of an autonomous discharge in a solid dielectric (Ref.6), and avalanche (Ref.7) or tunnel (Ref.8) emission under the influence of ion bombardment. A.I. Pyatnitskiy, Ye.A. Krasovskiy, V.G. Butkevich and M.M. Butslov are mentioned for their contributions in this field.

There are 8 figures and 8 references: 5 Soviet and 3 English.

Card 2/4

2

BALASHOVA, A.P.; GOR'KOV, V.A.; ZHDAN, A.G.; KUL'VARSKAYA, B.S.; PARILIS,  
E.S.; POLYAKOVA, M.A.; YURASOVA, V.Ye.; YASNOPOL'SKIY, N.L.

Tenth Congress on Cathode Electronics. Radiotekh. i elektron  
7 no.7:1258-1272 '62. (MIRA 15:6)  
(Electronics—Congresses)

YASNOPOL'SKIY, N.L.; MALYSHEVA, V.S.

Study of field-dependent transmission of secondary electron emission.  
Radiotekh. i elektron. 7 no.9:1657-1664 S '62. (MIRA 15:9)  
(Secondary electron emission) (Magnesium oxide)



YASNOPOL'SKIY, N.I.; BALASHOVA, A.P.; SHABEL'NIKOVA, A.E.

Experimental study of excited conductivity. Radiotekh. i  
elektron. 7 no.9:1665-1671 S '62. (MIRA 15:9)  
(Electric conductivity)

ACCESSION NR: AP4038615

S/0109/64/009/004/0643/0648

AUTHOR: Yasnopol'skiy, N.L.; Karelina, N.A.

TITLE: Effective secondary-electron emitter made of cesium-treated magnesium oxide and operating with shot-through primaries

SOURCE: Radiotekhnika i elektronika, v. 9, 1964, 643-648

TOPIC TAGS: secondary emission; secondary emission layer, cesium vapor treatment, magnesium oxide emitter

ABSTRACT: The response of compacted and uncompactd (friable) MgO emitters to treatment in cesium vapor was investigated with the aim of increasing the secondary emission coefficient. The emitters were to operate at low voltage with the primary electrons shot through the emitter. The technology of emitter preparation and the measurement procedure are described by the authors elsewhere (with V. S. Malyshcheva, Radiotekhnika i elektronika, 1961, v. 6, no. 1, 146). The tests resulted in a low-voltage effective emitter made of compacted layers of magnesium oxide treated in cesium vapor (see Fig. 1 of Enclosure). The secondary emission coefficient at 3 kev, for shot-through primaries, is about

Card 1/4 2

ACCESSION NR: AP4038615

10, which is nearly double the coefficient of an untreated layer. In the case of uncompact layers, cesium-vapor treatment contributes to the development of secondary emission, which is intensified by the field and can become self-maintaining emission (see Fig. 2 of Enclosure). "The authors are grateful to D.V. Zernov for a discussion of the work, and also to A.P. Ryabova for preparation of the experimental samples and instruments." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 14Feb63

NO REF SOV: 006

ENCL: 02

SUB CODE: EC

OTHER: 004

Cord 2/4 2

ACCESSION NR: AP4042526

S/0109/64/009/007/1293/1297

AUTHOR: Yasnopol'skiy, N. L.; Maly\*sheva, V. S.

TITLE: Peculiarities of the secondary emission from thin layers and the Malter effect

SOURCE: Radiotekhnika i elektronika, v. 9, no. 7, 1964, 1293-1297

TOPIC TAGS: electron emission, secondary emission, Malter effect, alumina secondary emission, thin layer secondary emission

ABSTRACT: The possibility of obtaining an emission from thin solid dielectric layers charged by electron bombardment and placed in a strong electric field in a vacuum is considered. A 400-Å-thick solid layer of  $Al_2O_3$  produced by pyrolysis on a tantalum backing was used as a target in the experiments, which proved that such layers produce neither a secondary-electron emission with abnormally high coefficients nor a self-sustained emission. The field emission from such layers

Card 1/2

ACCESSION NR: AP4042526

was found to be due to the presence of pores. The increase in the coefficient of a secondary-electron emission with higher collector potentials and the anomalous variation of this coefficient with time are due to positive surface charges and to a gradual rise of the steady-state current through the dielectric layer. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 09 May 63

ATD PRESS: 3069

ENCL: 00

SUB CODE: EC

NO REF SOV: 010

OTHER: 006

Card 2/2



L 41508-55

ACCESSION NR: AP4048874

0

effect, over-barrier transition, avalanche development, etc., are involved in the above phenomena. A discussion of the mechanism of classical Malter emitters is inconclusive: "Under various experimental conditions.... various mechanisms have played a predominant role...." Orig. art. has: 10 figures and 2 forms.

ASSOCIATION: none

SUBMITTED: 23Aug63

ENCL: 00

SUB CODE: EC

NO REF SOV: 022

OTHER: 032

Card 2/2 me

L 16180-65 EWG(j)/EWT(m)/EPF(c)/EPR/EWP(t)/EWP(b) Pr-4/PS-4  
 IJP(c) JD S/0109/64/009/011/2031/2036  
 ACCESSION NR: AP4048889

AUTHOR: Yasnopol'skiy, N. L.; Karelina, N. A.

TITLE: Some characteristics of secondary-electron, magnesium-oxide, penetration-type emitters

SOURCE: Radiotekhnika i elektronika, v. 9, no. 11, 1964, 2031-2036

TOPIC TAGS: magnesium oxide emitter, secondary emission, secondary emission coefficient

ABSTRACT: Results of an experimental investigation of the secondary emission from an MgO film distilled onto a thin Al backing are reported. The variation of the secondary-emission ratio  $\sigma$  with the backing thickness (200--400 Å), the MgO-layer thickness (47--120 microg/cm<sup>2</sup>), and current density in the primary electron beam ( $10^{-8}$  --  $10^{-4}$  amp/cm<sup>2</sup>) were investigated. These conclusions are reported: (1) reducing the backing thickness in low-voltage emitters results in the  $\sigma$  ( $V_p$ ) curves shifting toward lower  $V_p$  (primary-electron energy); however,

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L 16180-65

ACCESSION NR: AP4048889

the maximum  $\sigma$  practically does not vary or even decreases in the case of thin MgO layers; (2) Increasing the MgO-layer thickness up to an optimum value, for a given  $V_p$ , results in higher  $\sigma$ ; (3) the ratio of the number of slow secondary electrons to the number of penetrated primary electrons increases with the thickness of the MgO layer; this holds true for Cs-treated emitters also; (4) the secondary-emission ratio is practically independent of the current density for values of the latter up to  $10^{-4}$  amp/cm<sup>2</sup>; the ratio does not fall off in time under a bombardment of  $3 \times 10^{-6}$  amp/cm<sup>2</sup>. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 01Aug63

ENCL: 00

SUB CODE: EC

NO REF SOV: 005

OTHER: 002

ATD PRESS: 3146

Card 2/2

ACC NR: AT6033659

SOURCE CODE: UR/0000/66/000/000/0407/0418

AUTHOR: Yasnopol'skiy, N. L.; Sergeycheva, L. N.; Indrishenok, V. I.

ORG: none

TITLE: Study of currents in thin film dielectrics by an electron contact method

SOURCE: Voprosy plenochnoy elektroniki (Problems in thin film electronics); sbornik statey. Moscow, Izd-vo Sovetskoye radio, 1966, 407-418

TOPIC TAGS: microelectronic thin film, dielectric layer, *dielectrics, electron conductivity*

ABSTRACT: The conductivity characteristics of a thin film  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> dielectric were recorded. The film was vacuum-deposited on a tantalum substrate to a depth of 0.8  $\mu$  and was probed with 1-keV electron beam varying between  $10^{-8}$  and  $10^{-3}$  amp/cm<sup>2</sup> in intensity. Volt-ampere characteristics were obtained for both polarities of d-c voltage applied across the sample. A marked unidirectional conductivity was noted; it was determined that the injected carriers were electrons. Orig. art. has: 6 figures.

SUB CODE: 10/ SUBM DATE: 27Jun66/ ORIG REF: 006

Card 1/1

UDC: 539.216.2:537.525.92

ACC NR: AP7004916

(N)

SOURCE CODE: UR/0109/66/011/012/2265/2267

AUTHOR: Yasnopol'skiy, N. L.; Lozhkina, N. S.; Balashova, A. P.

ORG: none

TITLE: The effect of the level of excitation on the excited conductivity of thin  $Al_2O_3$  films

SOURCE: Radiotekhnika i elektronika, v. 11, no. 12, 1966, 2265-2267

TOPIC TAGS: electric conductivity, photoconducting film, *ALUMINUM OXIDE*

ABSTRACT: The electron contact method was used to study the excited conductivity of thin  $Al_2O_3$  films deposited from the gaseous phase on a metallic substrate; special attention was paid to the dependence of both the current and the coefficient of excited conductivity  $\gamma$  on the excitation level in the region of  $10^{-11}$ — $2.5 \cdot 10^{-9}$  amp/cm<sup>2</sup>. The thickness of films as determined from interference colors was 0.32 microns. Experiments were made with energies of the exciting electron beam  $V_{eb}$  corresponding to the maximum of  $\gamma(V_{eb})$  and to energies of the contacting electron beam equal to 1 kev. Irradiation was made through a fine grid placed approximately 0.5 mm from the surface of a film. The irradiated spot measured 7 mm in diameter and about 0.4 cm<sup>2</sup> in area. Potential difference between the base of the target and the collector grid was 140 v. Electrons were found to be the current carriers in the investigated films. Values of the coefficient of excited conductivity reaching as high as 200,000 were obtained with primary exciting electron energies of about 5 kev.

Card 1/2

UDC: 539.216.2:669.71

ACC NR: AP7004916

Assuming that the energy expended on the excitation of a single secondary electron is four times greater than the width of the forbidden zone  $\Delta E$  and that  $\Delta E = 7.3$  ev for  $Al_2O_3$ , then the number of secondary electrons produced by a single primary electron of the exciting beam is less than 200 and, consequently, photoelectric amplification  $\tau/t > 1000$ , where  $\tau$  is the lifetime of excited carriers, and  $t$  is their time of flight through the film. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 14Jul66/ ORIG REF: 002/ OTH REF: 002/

Card 2/2

ACC NR: AP7001719

SOURCE CODE: UR/0048/66/030/012/1882/1887

AUTHOR: Yasnopol'skiy, N.L.; Shabel'nikova, A.E.; Shevaldin, V.A.;  
Lozhkina, N.S.;

ORG: none

TITLE: Investigation of field-enhanced secondary-electron emission from  
porous emitters [Paper presented at the 12th All-Union Conference on Physical  
Principles of Cathode Electronics held in Leningrad from 22-26 October 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 12, 1966,  
1882-1887

TOPIC TAGS: electron emission, secondary electron, electric field,  
magnesium oxide

ABSTRACT: An experimental study was made to explain the mechanism of the field-  
enhanced secondary-electron emission from porous MgO. Samples were pre-  
pared by depositing Mg smoke in the air on 200 Å-thick aluminum membranes  
stretched over fine supporting meshes with 70% penetrability, which made  
it possible to bombard the material with electrons from both the front  
and the back. The investigations of the secondary emission coefficients  
as a function of the electric field intensities included measurements

Cord 1/2

UDC: none

ACC NR: AP7001719

performed consecutively on the same sample, measurements made on several MgO samples, and measurements of total secondary emission coefficients and their non-inertial components at primary electron energies in the range of 2—5 keV with irradiation from the front and back. From an analysis of the curves, it was concluded that the field-enhanced secondary emission, as well as the occurrence of self-consistent emission, cannot be explained by a single physical cause but must be attributed to the superposition of two effects due to different mechanisms. The field enhanced emission occurs, it is stated, in the whole range of the applied potential difference, to which inertial emission is added only when the field's intensity is sufficiently high. Measurements were also made on porous CsI films, and they likewise showed high coefficient values of field-enhanced emission. The authors thank D. V. Zernov for evaluating the work. [ZL]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 003/  
ATD PRESS: 5114

Card 2/2

YASNOPOL'SKIY, S.L.

Effect of silt deposition on the performance of drainage structures  
and measures for its prevention. Izv. vys. ucheb. zav.; geol. i  
razv. 3 no.5:117-124 My '60. (MIRA 13:11)

1. Krasnoyarskiy institut tsavethykh metallov imeni M.I.Kalinina.  
(Drainage) (Silt)

CA

22

Determination of explosive limits of concentrations of lubricating-oil vapors in a mixture with air. V. I. Yasnopol'skiy, *J. Applied Chem.* (U. S. S. R.) 14, 133-30 (in French, 130) (1941); translated in *Foreign Petroleum Tech.* 9, 332-43 (1941).—The investigation was carried out in an electrically heated steel bomb which was charged with the oil (in a small porcelain cup) to be investigated (gas oil, transformer oil, machine oil, cylinder oil and compressor oil). Ignition was effected by means of a spark plug after bringing the temp. of the bomb to the desired value. The oil left in the cup after the explosion was weighed, and thus was ascertained the amt. of oil used up in the explosion. All the oils were brought to explosion by heating them within definite temp. ranges and for various times. The explosibility of the oils depends upon the treatment (before the expt.) and also upon the chem. compn. of the oil.

A. A. Bochtlingk



10

ca

PROCESSES AND PROPERTIES INDEX

The synthesis of difurylbutynediol. V. D. Yasnopol'skiy. *J. Gen. Chem. (U.S.S.R.)* 14, 106-7(1943) (English summary). - When  $C_{10}H_8$  is passed into a soln. of  $RbMgBr$  and the product is treated with fufural, it gives 38.0% 1,4-di-2-furyl-2-butyne-1,4-diol,  $n_D^{20}$  1.2343,  $n_D^{25}$  1.0102. This decamps. even when steam-distd. in a vacuum and forms resins very easily. H. M. Leicester

DETAILS INDEX

COMMON VARIABLES INDEX

ABBREVIATED DETAIL INDEX

DETAILS INDEX

COMMON VARIABLES INDEX

PROCESSES AND PROPERTIES INDEX																									
LIST AND NO. CRYST.													LIST AND NO. CRYST.												
<p>CA</p> <p>Oxidation of tetraphenylbutynediol by chromic anhydride. V. D. Yasnopol'ski. <i>Zhur. Obshch. Khim.</i> (J. Gen. Chem.) 18, 1789 (1948). (HOX PhC<sub>6</sub>H<sub>5</sub>) (1 g.) in 10 ml. AcOH treated with 2.053 g. Cr oxide in 10 g. AcOH, let stand 1 hr., extd. with pet. ether, and the vapd. ext. washed with NaOH and H<sub>2</sub>O and concd. gave 40% 2,2,3,3-tetraphenyl-3,4-dioxetetrakylidene, a red oil, which, treated with LiMgBr (from 1 g. Mg) and decompd. with H<sub>2</sub>O, as usual, yielded 40% 2,2,3,3-tetraphenyl-3,4-dihydroxy-3,4-dihydrotetrakylidene, m. pt. 3° (from EtOH). Heated with P<sub>2</sub>O<sub>5</sub>, H<sub>2</sub>SO<sub>4</sub>, 2 hrs. on a steam bath it gave 2,2,3,3-tetraphenyl-3,4-dihydroxytetrakylidene, m. pt. 15-16° (from EtOH). V. M. K.</p>																									
<p>10</p>																									
<p>AND SEA DETAILING LITERATURE CLASSIFICATION</p>																									

YASNOPOLSKIY, V. D.

PA 59/49T101

USSR/Petroleum Processing  
Petroleum Processing  
Gasoline  
Jul 48

"Sulfurous Compounds in Nebitdagstiy Petroleum,"  
V. D. Yasnopol'skiy, 1 1/2 pp

"Nefit Khoz" No 7

Nebitdagstiy oil is not considered a sulfurous oil. Analysis showed following sulfur contents of various strata (in %): 0.24, 0.31, 0.33, 0.36, 0.18. However, these sulfur compounds are by no means inert in refining process. Hydrogen sulfide is noticeable in various

59/49T101

USSR/Petroleum (Contd) Jul 48

products; it gives corrosive properties to gasoline produced from this crude. Tables show detailed analysis of sulfur compounds and method for removing most unstable ones (sulfides and bisulfides, 65% of total S-compounds).

59/49T101

CA

Sulfur compounds in Nohitdag crude oil. V. D. Yano.  
 and Sh. N. Nohitdag. *Ann. No. 7, 81 2(1947)*. The  
 processing of Nohitdag crude oil (0.18% S) causes  
 difficulties owing to formation of  $H_2S$  and deposition of  
 elementary S during distn. or cracking, although neither  
 of them is present in the crude oil. For group analysis of S  
 compds. by the method of Faragher (C.A. 22, 2266), a  
 broad fraction boiling up to  $240^\circ$  was sepd. from the crude  
 oil because the crude oil itself formed persistent emulsions  
 upon addn. of each reagent. This fraction contained a  
 total of 0.1638-0.067% S comprising mercaptans 4.4,  
 disulfides 26.3, sulfides 37.3, and residual S 31.1% (pre-  
 dominantly thiophanes but no thiophenes). To correlate  
 these data with the crude oil as a whole, a sample of the

crude oil was treated with 50% by vol. of concd.  $H_2SO_4$   
 and, upon sepn. of sludge and neutralization, was washed  
 with  $H_2O$  and tested for S by the bomb method. The  
 amt. of acid-sol. straight-chain and cyclic sulfides thus  
 removed was 40-54.5%, which agrees fairly well with the  
 figure for sulfides and disulfides found previously in the  
 broad fraction. These constituents, being the least stable  
 of all, break down during processing with formation of S,  
 $H_2S$ , and mercaptans. Bruno C. Metzner

IASNOPOL'SKII, V. D.

V. D. Iasnopol'skii, On the question of the oxydation of tetra-phe-nyl-butindiole with chronic anhydride. p. 1789

The reaction of 2, 2, 5, 5-tetraphenyl-3, 4-dioxo-tetra-hydrofurane with the Grignard reagent obtained a glycol 2, 2, 5, 5-tetra-phenyl-3, 4- dioxy-3, 4-di-ethyl-tetra-hydrofurane and on hydrating the latter hydro-carbon, 2, 2, 5, 5-tetra-phenyl -3, 4-di-methyl-methylene-tetra-hydro-furane was obtained.

September 15, 1947

SO: Journal of General Chemistry (USSR) 28, (80) No. 10 (1948):

10

CA

The synthesis of acetylenic  $\gamma$ -glycols. V. D. Vas-  
nopol'skiĭ. *J. Gen. Chem. U.S.S.R.* 10, 281-4 (1949)  
(Engl. translation).—See *C.A.* 43, 6573f. E. J. C.

YASNOPOL'SKIY, V. D.

PA 46/49T19

USSR/Chemistry - Acetylene Compounds  
Chemistry - Synthesis

Feb 49

"Synthesis of Acetylene Gamma-Glycols," V. D.  
Yasnopol'skiy, 5 pp

"Zhur Obshch Khim" Vol XIX, No 2

Obtained tetrasterylbutyndiol and 1,8-difuryl-3,6-dimethyloctadiene-1,7-ene-4-diol-3,6 for first time and describes their properties. Obtained acetylene gamma-glycols with two amino groups: 3,6-distyryl-1,8-diphenyl-1,8-diamino-octine-3,6. Submitted 22 Mar 47.

46/49T19

117 AND 740. CROOKS

PROCESSES AND PROPERTIES INDEX

Synthesis of acetylenic  $\gamma$  glycols. V. D. Vasniogud'ski. *Zhur. Obshch. Khim.* (J. Gen. Chem.) 19, 397 (1949).  
BrMgC<sub>6</sub>CMgBr (from C<sub>6</sub>H<sub>6</sub> and EtMgBr from 120 g. EtBr) in Et<sub>2</sub>O and 110 g. furfurylideneacetone in C<sub>6</sub>H<sub>6</sub>, let stand 3 days and decompd. with H<sub>2</sub>O, gave, after extr. with C<sub>6</sub>H<sub>6</sub> and distn. of the ext., 27 g. unstable 1,3-di-furyl-3,6-dimethyl-1,7-octadien-4-yn-3,6-diol, bp 101-6°; heating with Ac<sub>2</sub>O and NaOAc gave the diacetate, bp 99-101°, d<sub>4</sub><sup>20</sup> 0.8771. (PhCl:CH)<sub>2</sub>CO (80 g.) in the above reaction gave 12 g. tetra-furylbutynediol, bp 135-6°, m. 79-81° (from EtOH). Passage of NH<sub>3</sub> into (PhCl:CH)<sub>2</sub>CO in alc. gave 1,5-diphenyl-1-amino-1-penten-3-one, m. 92-3°. This (10 g.) was added to the reaction mixt. of EtMgBr (from 60 g. EtBr) and C<sub>6</sub>H<sub>6</sub> (in Et<sub>2</sub>O) in C<sub>6</sub>H<sub>6</sub>, let stand 24 hrs., and treated with aq. (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> to give 3,6-di-furyl-1,3-diphenyl-1,3-diamino-1-octyn-3,6-diol, m. 150° (from EtOH) (monopurified, m. 135°); 10% NaOH cleaves C<sub>6</sub>H<sub>6</sub> from this glycol on warming.  
(I. M. Kosolapoff)



YASNOPOL'SKIY, V. D.

0003

Action of dibromosallyl alcohol on disodiummalonic ester.  
V. D. Yasnopol'skiy. *J. Gen. Chem. U.S.S.R.* 24, 2033-4  
(1954) (Engl. translation).—See *C.A.* 49, 13900c.

B. M. B.

YASNOPOLSKIY, V I

✓ Action of dibromoallyl alcohol on diisodimaleonic ester.  
 V. D. Yasnopol'skiy. *Zhur. Obshchey Khim.* 24, 2066-7  
 (1954).—Addn. of 100 g. Br to 58 g.  $\text{CH}_2=\text{CHCH}_2\text{OH}$  with  
 ice cooling gave  $\text{CH}_2\text{BrCHBrCH}_2\text{OH}$  (I), b. 205.5-6°, d.  
 1.8000,  $n_D^{20}$  1.5380.  $\text{CH}_2(\text{CO}_2\text{Et})_2$  was added to 17 g. Na  
 under  $\text{C}_6\text{H}_6$  and allowed to stand 24 hrs. and finally warmed  
 to complete the reaction. Treatment of the di-Na deriv.  
 (II) with I resulted in return of 62% I, while the rest was  
 transformed into a tar. Treatment of I with  $\text{BzCl}$  in 50%  
 NaOH gave 10.8% I benzoate, m. 83-8°. This (16 g.) and  
 II from 8 g. malonic ester heated 5 hrs. on a steam bath gave

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7.6 g.  $\text{B-OCH}_2\text{CH}_2\text{C}(\text{CO}_2\text{Et})_2\text{CH}_3$ , m. 115-17° (from  $\text{C}_6\text{H}_6$ ).  
 G. M. Kosolapov

YASNOPOLSKIY, V. V.

*YASNOPOL'SKIY, V.D.*

AUTHOR  
TITLE

YASNOPOL'SKIY, V.D., DOLNAKOVA, I.E., PEROVA, N.I. 32-6-9/54  
On the quantitative analysis of sulphuric acid after the  
effect of alkalinizing processes.

PERIODICAL

(O kolichestvennom analize otrabotannoy sernoy kisloty ot  
protssessov alkilirovaniya.- Russian)  
Zavodskaya Laboratoriya 1957, Vol 23, Nr 6, pp 665-667  
(U.S.S.R.)

ABSTRACT

Received: 7/1957  
Reviewed: 8/1957  
For the analysis of sulphuric acid affected by alkalinizing  
processes a special method has been developed (F.F. Weiss  
Anal. Chem., Vol 25, Nr 2, pp 277 - 1953) which, however  
appears to be too complicated. In the paper suggestions are  
made for a simplification of this method, chiefly with respect  
to the analysis of acids remaining after the alkalinizing of  
benzole by propylene or isobutane or isobutane or butylene.  
According to the method of Weiss, determination of free  
sulphuric acid is based on the insolubility of anilinsulphate  
in chloroform, was anilin salts of other acid components are  
easily soluble. This method was compared with an other which  
is based on the solubility of acid-ether-barium salts of  
sulphoacids in water. The results were the same, the method,  
using bariumcarbonate however took, too much time (12 hours).

CARD 1/2

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001962230003-5"

On the quantitative analysis of sulphuric acid after the  
effect of alkalinizing processes. 32-6-9/54

Weiss is more advantageous and is therefore recommended. Ex-  
perimental examination has shown that the determination of  
SO according to the method by Weiss is simple and easy to  
reproduce. The method by Fischer is especially sensitive  
for the determination of the water content, but this method  
requires much caution and is too complicated, and is there-  
fore hardly applicable in factory laboratories. The method  
of sulphate acids because the increased results were ob-  
tained and each determination process took two days. For  
this purpose that method is here recommended, which is  
based on the unsolubility of barium salts of sulphurous and  
sulphuric acids in water and at the same time on the good  
solubility of acid ether bariumsalts and sulphoacid - barium  
salts. In the paper the practical determination process is  
shown.  
(With 2 tables.)  
(With 2 tables.)

ASSOCIATION: not given.  
PRESENTED BY: -  
SUBMITTED: -  
AVAILABLE: Library of Congress.